

U.S. Patent Application Serial No. 10/820,345
 Amendment Under 37 C.F.R. § 1.116 dated February 8, 2007
 Reply to Final Office Action of December 8, 2006

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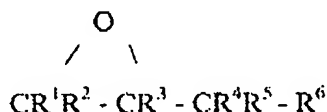
FEB 08 2007

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A pigment ~~composition~~ comprising pigment particles reacted with an epoxy compound in the presence of a solvent for dispersing the pigments to provide a surface treatment of the particles, the epoxy compound having a general formula:



wherein R^1 , R^2 , R^3 , R^4 and R^5 are each, independently, hydrogen, or substituted or unsubstituted alkyl, or, R^2 and R^4 may be taken together to form a 5-7 membered ring, and

R^6 is hydrogen, $-\text{OOCR}^7$, $-\text{OR}^8$, $-\text{OOC}-\text{CR}^9=\text{CR}^{10}\text{R}^{11}$, a monoepoxy or polycycloepoxy group containing diphenyl, phenyl, or substituted or unsubstituted alkyl or cycloalkyl, or a monoepoxy or polycycloepoxy group containing a polyether group,

R^7 , R^8 , R^{10} and R^{11} are each, independently, hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted aryl, or substituted or unsubstituted alkenyl,

R^9 is hydrogen, or alkyl,

with the proviso that the epoxy compound has no silicon-containing group.

2. (Currently amended) The pigment ~~composition~~ as claimed in Claim 1, wherein the epoxy compound has an epoxy equivalent weight of less than 1000.

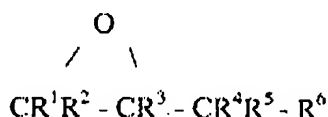
3. (Currently amended) The pigment ~~composition~~ as claimed in Claim 1, wherein the epoxy compound is selected from a group consisting of glycidyl ethers, glycidyl esters, cycloaliphatic epoxy compounds, and cycloaliphatic diepoxy compounds.

4. (Currently amended) The pigment ~~composition~~ as claimed in Claim 1, wherein the epoxy compound is selected from a group consisting of glycidyl methacrylates and glycidyl acrylates.

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5. (Currently amended) A pigment dispersion comprising:

a dispersing agent, and a pigment composition dispersed in the dispersing agent, wherein particles of the pigment composition are reacted with an epoxy compound to provide a surface treatment of the particles, the epoxy compound having a general formula:



wherein R^1 , R^2 , R^3 , R^4 and R^5 are each, independently, hydrogen, or substituted or unsubstituted alkyl, or R^2 and R^4 may be taken together to form a 5-7 membered ring, and

R^6 is hydrogen, $-\text{OOCR}^7$, $-\text{OR}^8$, $-\text{OOC}-\text{CR}^9=\text{CR}^{10}\text{R}^{11}$, a monoepoxy or polyepoxy group containing diphenyl, phenyl, or substituted or unsubstituted alkyl or cycloalkyl, or a monoepoxy or polyepoxy group containing a polyether group,

R^7 , R^8 , R^{10} and R^{11} are each, independently, hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted aryl, or substituted or unsubstituted alkenyl,

R^9 is hydrogen, or alkyl,

with the proviso that the epoxy compound has no silicon-containing group.

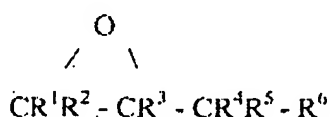
6. (Original) The pigment dispersion as claimed in Claim 5, wherein the epoxy compound has an epoxy equivalent weight of less than 1000.

7. (Previously presented) The pigment dispersion as claimed in Claim 5, wherein the epoxy compound is selected from group consisting of glycidyl ethers, glycidyl esters, cycloaliphatic epoxy compounds, and cycloaliphatic diepoxy compounds.

8. (Original) The pigment dispersion as claimed in Claim 5, wherein the epoxy compound is selected from a group consisting of glycidyl methacrylates and glycidyl acrylates.

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9. (Original) A method of surface treating pigment particles, comprising:
 mixing the pigment particles with an epoxy compound in the presence of a solvent to form a slurry; and
 causing the pigment particles to react with the epoxy compound at an elevated temperature,
 wherein the epoxy compound has a general formula



wherein R¹, R², R³, R⁴ and R⁵ are each, independently, hydrogen, or substituted or unsubstituted alkyl, or R² and R⁴ may be taken together to form a 5-7 membered ring, and

R⁶ is hydrogen, -OOCR⁷, -OR⁸, -OOC-CR⁹-CR¹⁰R¹¹, a monoepoxy or polyepoxy group containing diphenyl, phenyl, or substituted or unsubstituted alkyl or cycloalkyl, or a monoepoxy or polyepoxy group containing a polyether group,

R⁷, R⁸, R¹⁰ and R¹¹ are each, independently, hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted aryl, or substituted or unsubstituted alkenyl,

R⁹ is hydrogen, or alkyl,

with the proviso that the epoxy compound has no silicon-containing group.

10. (Original) The method as claimed in Claim 9, wherein the epoxy compound has an epoxy equivalent weight of less than 1000.

11. (Previously presented) The method as claimed in Claim 9, wherein the epoxy compound is selected from a group consisting of glycidyl ethers, glycidyl esters, cycloaliphatic epoxy compounds, and cycloaliphatic diepoxy compounds.

12. (Original) The method as claimed in Claim 9, wherein the epoxy compound is selected from a group consisting of glycidyl methacrylates and glycidyl acrylates.

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13. (Original) The method as claimed in Claim 9, further comprising the step of removing the solvent and drying the pigment particles treated with the epoxy compound.

14. (New) The pigment of claim 1 wherein the reaction of pigment particles with the epoxy compound forms a thin layer on the pigment surface.

15. (New) The method of surface treating pigment particles according to claim 9 wherein the reaction of pigment particles with the epoxy compound forms a thin layer on the pigment surface.